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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/774,638	07/02/2002	Gregory Burdett	08894984US	7715

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EXAMINER
HERRING, VIRGIL A

ART UNIT	PAPER NUMBER
2132	

DATE MAILED: 03/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/774,638	Applicant(s) BURDETT ET AL.	
	Examiner Virgil Herring	Art Unit 2132	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _02 July 2002_.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-11_ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-11_ is/are rejected.

7)☒ Claim(s) _7_ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _27 April 2004_ is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

This action is in response to the communication filed July 2, 2002. Claims 1-11, representing a system and method for securely accelerating wireless VPN client communications, are pending.

According to the oath/declaration, assignment to Nortel Networks Limited was requested at the time of filing. This assignment is recorded in the published application (# 20040158705).

Applicant's claim of priority from provisional application 60/368510, filed May 9, 2002 is noted.

Drawings

The replacement drawings were received on April 27, 2004. These drawings are accepted in regards to the pre-exam formalities, although other problems are still present.

Figure 3 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g).

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "112" has been used to designate two different OSI protocol stacks in figure 3. Based on the explanation in the specification, the examiner believes the first stack (the taller one) may be content server 110.

The drawings are objected to because of an unlabeled item in figure 3. Based on comparison to figure 1, the examiner believes the unlabeled "short" protocol stack may be transmitter/receiver 116. Clarification of this point is requested.

The drawings are objected to because the specification repeatedly refers to "wireless network [108^1]", although in figure 4 it is labeled 108'. Page 7, line 20 also includes a reference to "wireless network [108]", which could refer to item 108 of figure 1, but in context seems to be directed to wireless network 108^1/108'.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

The disclosure is objected to because of the following informalities:

Page 4, line 23 should read “is because” rather than “because”.

Page 6, line 5 should read “from the” rather than “form the”.

Page 11, line 19 should read “end-users” rather than “end-uses”.

Appropriate correction is required.

Claim Objections

Claim 7 is objected to because of the following informalities: lines 20-21 read “whereby a secure virtual network service is provided between the private network service is provided between the private network and the wireless client, for”. Only one instance of the text “service is provided between the private network” is necessary in the context of the claim. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 3, 6, 7, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chuah et al (US Patent # 6,496,491) in view of Gleeson et al (US Patent # 5,446,736).

With regards to claim 1, Chuah et al disclose a method of securely communicating customer premises equipment based virtual private network transmissions over a carrier network comprising the steps of:

establishing an encrypted tunnel between a VPN client and a VPN server in response to a VPN client request for information; (Figure 8, where connection 814 corresponds to the encrypted tunnel, wireless PC 805 corresponds to the VPN client, and serving NAS 815 corresponds to the VPN server)

transmitting said VPN client's VPN address and required data information to said VPN server over said encrypted acceleration tunnel; (inherent step required for all VPNs)

establishing an encrypted VPN tunnel between said VPN server and an appropriate VPN switch thus providing access to the appropriate enterprise content servers, said appropriate Enterprise content server corresponding with said required data information transmitted; (Figure 8, where connection 816 corresponds to the encrypted VPN tunnel, serving NAS 815 corresponds to the VPN server, and router 165 corresponds to the VPN switch, and the corporate network contains one or more content servers) encrypting and transmitting required data corresponding to said required data information from said VPN switch to said VPN server over said VPN tunnel, said required data is communicated from said appropriate Enterprise content server to said VPN switch prior to encryption and transmission; (inherent, see below)

decrypting said required data at said VPN server; (inherent, see below)

encrypting by said VPN server and transmitting said required data to said VPN client; and (inherent, see below)

decrypting said required data in response to said VPN client receiving said required data. (inherent, see below)

Chuah et al do not expressly disclose the use of wireless transmission acceleration in a VPN. However, Gleeson et al disclose methods for wireless transmission optimization in both WANs and LANs.

The optimization taught by Gleeson et al takes place in an "optimization layer", inserted between the network layer and data link layer of the OSI stack. The examiner notes that this is analogous to the applicant's system, in which the "acceleration" is performed by using transmission optimization techniques in the network layer. Applicant defines acceleration as "wireless communication performance optimization techniques including compression, protocol optimization, caching, and traffic management". Gleeson et al disclose: "standard protocols are optimized by filtering and discarding some protocol packets, generating and 'synthesizing' the reception of other protocol packets, and removing and transforming protocol header fields" (Col. 3, Lines 50-56). Removing protocol header fields results in compression of the packets involved. Also, filtering and discarding some packets is clearly an example of traffic management. Additionally, Gleeson et al discuss caching of data packets (although they use the word buffer) in column 21, lines 19-22. Thus, the disclosure of Gleeson et al teaches all four factors of wireless acceleration.

At the time of the invention, it would have been obvious to those skilled in the art that the wireless WAN optimization techniques of Gleeson et al would also be applicable in the wireless VPN of Chuah et al. The motivation for this would have been to "allow the use of standardized protocols to interface wireless nodes with the wireless network while taking into account the special characteristics of the wireless WAN" (Gleeson et al, Col. 3, Lines 33-36).

Several steps of claim 1 are marked as "inherent, see below". Communications in a Virtual Private Network must necessarily be encrypted to protect the privacy of the network. Thus, the packets are inherently sent in an encrypted form from the "real" network to the serving NAS 815 on the virtual network. Because the teachings of Gleeson et al are applied to serving NAS 815, the packets must be decrypted within that device before the optimization steps can be applied. The optimized packets must then be encrypted before being sent to wireless PC 805 to maintain the privacy of the VPN.

The optimized packets must then be decrypted again at wireless PC 805 before they can be used.

With regards to claim 7, the combination of Chuah et al and Gleeson et al would include a server for providing secure virtual private network service for wireless clients comprising:

a first module for terminating a virtual private network tunnel to a private network switch; (Chuah et al as modified by Gleeson et al: Figure 8, where serving NAS 815 includes a module for establishing connection 816 through the Internet to router 165)

a second module for accelerating data for transmission over a wireless network; and (Chuah et al as modified by Gleeson et al: Figure 8, where serving NAS 815 includes a module for wireless communication optimization as described above)

a third module for terminating an encrypted tunnel to a wireless client whereby a secure virtual network service is provided between the private network service is provided between the private network and the wireless client, for which acceleration of data on the wireless network is provided. (Chuah et al as modified by Gleeson et al: Figure 8, where serving NAS 815 includes a module for establishing connection 814 to wireless PC 805)

With regards to claim 3, the combination of Chuah et al and Gleeson et al as described above includes a method as claimed in claim 1 wherein the required data information includes at least one of a VPN switch address, user name, and password. (Chuah et al, Col. 4, Lines 31-32; the VPN switch address is required, because the user name and password would only apply to a certain private network)

With regards to claims 6 and 10, the combination of Chuah et al and Gleeson et al as described above includes a method as claimed in claim 1 wherein the encrypted VPN tunnel is a L2TP tunnel. (Chuah et al, Col. 3, Lines 61-67; the NAS support the L2TP)

With regards to claims 2 and 11, the combination of Chuah et al and Gleeson et al as described above does not include a method as claimed in claim 1 wherein the step of establishing an encrypted acceleration tunnel uses public key infrastructure (PKI) encryption. However, Hagen (US Application # 2002/0075844 A1) discloses a system and method for integrated public and private network resources for optimized broadband wireless access. Specifically, in paragraph [0070], Hagen discloses the use of "conventional Internet security protocol (IPSec) ... operating with a conventional public key infrastructure (PKI) digital certificate service;" and that "as known in the art, IPSec is preferably operated in tunnel mode ... thus establishing a virtual private network (VPN)." Hagen is analogous art with the combination of Chuah et al and Gleeson et al, because his goal is optimized wireless online access (as in Gleeson et al) using VPN (as in Chuah et al). As Hagen states, the use of both IPSec and PKI are "conventional" and IPSec VPNs are "known in the art". Thus, it would have been obvious for one skilled in the art to consider both PKI and IPSec in the VPN of Chuah et al.

With regards to claims 4 and 8, the combination of Chuah et al and Gleeson et al, as further modified by Hagen includes a method as claimed in claim 1 wherein the encrypted VPN tunnel is an IPSec tunnel.

With regards to claims 5 and 9, the combination of Chuah et al and Gleeson et al as described above does not include a method as claimed in claim 1 wherein the encrypted VPN tunnel is an MPLS tunnel. However, Forslow (US Application # 2002/0133534 A1) discloses a network-based mobile workgroup system. Specifically, in paragraph [0020]: "Several solutions have been put forward to achieve different levels of network privacy when building VPNs across a shared IP backbone, so target network-based VPNs. Most of these solutions require separate per VPN forwarding capabilities and make use of IP or MPLS based tunnels across the backbone network." Thus, at the time of the invention it would have been obvious to one skilled in the art to use a MPLS tunnel in a VPN, as described by Forslow as prior art.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Virgil Herring whose telephone number is (571) 272-8189. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gilberto Barron can be reached on (571) 272-3799. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Virgil Herring
Examiner
Art Unit 2132

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